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THE AESTHETIC IN GEOGRAPHY

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Among the many satisfactions that may come from the study of geography, few are more appealing or give greater personal intellectual or emotional return than those which arise from an appreciation of the aesthetic in geography, whether one is primarily interested in the physical aspects of the earth or in the relationships, often subtle, of life to its physical setting.

These satisfactions are of many kinds but often their quality is such that they cannot, perhaps, be shared, except with a kindred spirit, and then only in the silence that comes as one views with reverential awe a scene so vast, so inspiring, so appealing, and so far beyond real understanding that only by silence can one be just to himself.

Great spectacles like the Grand Canyon of the Colorado or Crater Lake in Oregon may appeal to one because of their grandeur or beauty of color, and can only be appreciated after long contemplation as the changing shadows of the day reveal qualities lost to the casual itinerant tourist.

In many landscapes size and color are but two phases of a many phased beauty, and in many cases size even fades into insignificance; for when we look closely the most impressive element is that of form. In our most majestic mountains, symbols of permanency, stability and strength, seemingly unchanged by the passage of the ages, the most impressive feature to him who looks with understanding is the beauty of outline. Each peak and ravine has a form, individual and appealing, over which the shadows play like the smiles and frowns on a human face. The White Mountains in New Hampshire are impressive for their calm majesty, their rolling profiles, and their massiveness as a group, especially when viewed from the north. The forest cover, the play of color as the clouds roll about the summits, or as the storms rage even into the lowlying valleys present color effects that appeal to one who is im-

pressed most vividly by color changes. But back of the superficial changing hues—appealing as they may be—are the "everlasting hills," whose profiles remain as they have been thru the memory of man, beautiful, dignified and awe inspiring.

Equally satisfying may be the beauties of vast expanses in regions of gentle profiles like many parts of the Great Plains of the west. The gently rolling hills that extend in low billows to the horizon, like a great earth ground swell, suggest the infinite as do few earth features, unless we except the soul stirring ebb and flow of the tides "twice in twenty-four hours" since there was first water on the face of the earth. To look out on these great waves of form, succeeding one another as far as the eye can reach, is to get an impression of large scale beauty, of vastness, and of the infinitely small part that an individual plays therein that is almost overwhelming in its sweep. Here the beauty of form is supreme. Detail is lost in the vastness and dignity of the whole, and the mind is opened to conceptions of time and space, as in a mountain region but perhaps more easily because of the unity of the vast scene.

But it is not only the larger features of the earth that may give one aesthetic satisfaction. Equal pleasure may come from viewing with an appreciative eye the minute features of moderate size. The forms left by rills after a rainstorm in a freshly plowed field—epitomes of features perhaps too large to be viewed as wholes—may often exhibit profiles and slopes in miniature as beautiful in curves as those to be seen in a long distance view from a mountain top.

Whoever has studied the convex outlines of a perfect sand dune fluted into thousands of minute ridges by the wind, carries away a memory of curves as beautiful as any that can be drawn or moulded. Yet these forms have been produced by the chance blowing of the wind over millions of particles of sand, and have been fashioned by one of the great forces of nature working quietly, everlastingly and with varied emphasis thru the years. The dune of today will change by the morrow and is as fleeting in outline as the form of a cloud in a summer sky. To become really acquainted with a series of sand dunes, to know their forms, to read their history, to become steeped with their beauty is to put oneself in sympathy with Nature and to feel a deep reverence for her work.

But it is not only the land forms that may be viewed aesthetically. A great forest, by its quiet atmosphere, its pillared spaces and its ever changing shadows and light, affects one as does the interior of a great cathedral. One who has read Muir's *Mountains*

of California has a vivid impression of how an appreciative soul responds emotionally to the beauties and majesty of a forest.

There is something equally sublime in the great silence and the beauties of the heavens in a desert. "No one knows how many voices a tree has until he has come up to it out of the silence of a desert," to quote George Adam Smith. Here again one senses the infinite in the beauty of land and sky.

Yet no desert sky with the stars shining as jewels against the darker background of the heavens, is more impressive than the evening twilight arch as it rises in the eastern sky—a commonplace phenomenon that all may see, and seeing, appreciate one of the results of the constantly rotating earth.

Inspiration also is to be gained from viewing scenes which indicate how a human group has adapted itself to the physical conditions about it. It may be the perfect setting of a home, with the accessory buildings, gardens and fields, so located as to be exposed to the summer breezes and winter sunlight while protected from the prevailing winter winds. It may be a picturesque fishing village at the head of a small bay with a background of evergreens. It may be the well placed site of a pre-historic Indian village, or even a desert oasis settlement about the never failing spring, which is the life center of the human group.

Such human relationships, and many others that might be noted, are what may give to travel by train or auto a completeness in experience that will ever be remembered by an observant student of human relations to the earth.

But there is another type of satisfaction to be gained from the study of geography, and that is the ability to sense the beauty of scenes described by poets, or by those who can express poetic viewpoints in prose. We must recognize that poets often catch the so-called spirit of a region—that is the impression it makes on an appreciative and inquiring individual—better than does the student of intimate details. But the poet's description gains worth to the reader, if he can so visualize the scene depicted that he senses the hidden beauties, either physical or cultural, perhaps not seen by the portrayer of a generalized scene.

The ability to appreciate beauties in the geographic field may perhaps be acquired but partially—such being the limits of human abilities. But, as one goes deeper into any science, indeed any subject, the satisfactions to be gained from the study of it constantly increase, provided one has gained the ability to see the qualities of wholes as well as of details.

FORCES FOR UNION AND DISUNION IN BRAZIL

An Essay in Political Geography*

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How weak is the largest American state, Brazil? Even in the midst of patriotic proclamations there is an audible undercurrent of talk in Brazil about the possible breakup of this colossus among nations into smaller and weaker units. To what extent are these suggestions based on real possibilities? There can be no doubt of the existence within the territory of our southern neighbor of mineral resources of superlative quality and quantity; there can be no doubt that, from a physical point of view, Brazil has a smaller proportion of its total area that is uninhabitable than is the case in any other nation of the world of comparable size. Are these facts dangerous to the unity of Brazil or are they likely to lead toward closer unity?

Obviously no one can provide a complete answer to these questions. But the geographer, whose field studies bring him into intimate contact with many phases of Brazilian life, can offer a few observations—he can attempt to identify certain forces which seem to lead toward disunion, and others which seem to lead toward a stronger union.

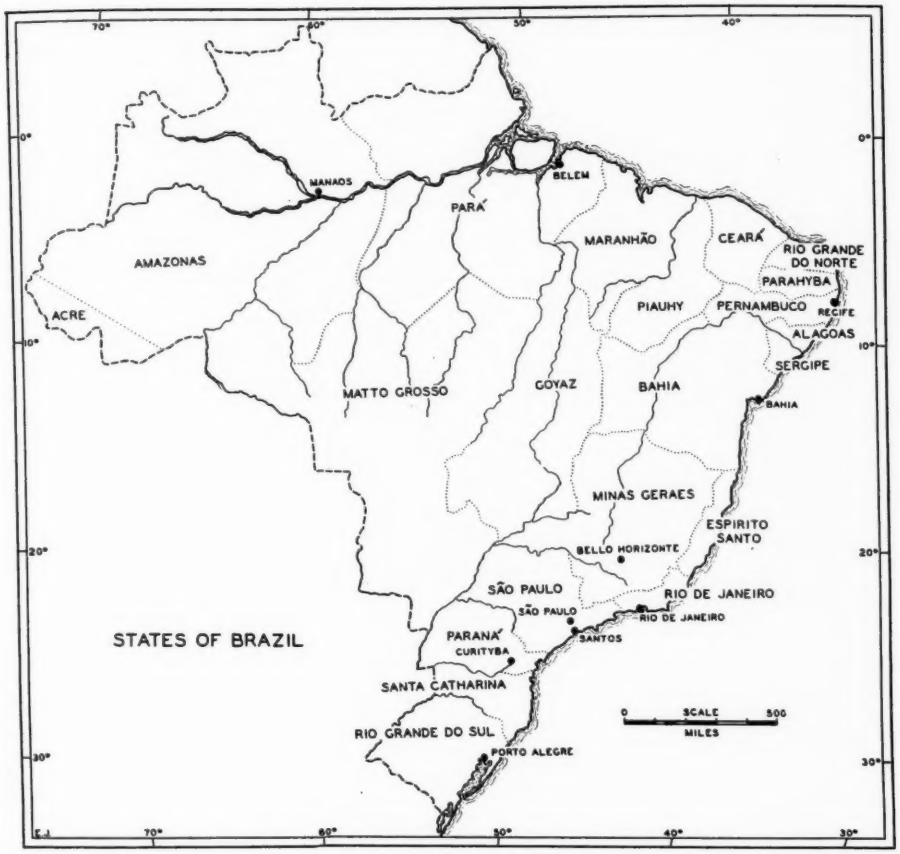
Forces for Disunion

Forces leading toward disunion are not difficult to find. First of all is the isolation of the Brazilian people from each other. The distribution of population is characterized by the appearance of groups or clusters separated by scantily occupied territory. Each of the states is formed around one of these nuclei, and the state boundaries are commonly drawn thru the empty country between. To be sure, most of the clusters are located near the sea, and the sea routes lead to the capital city, Rio de Janeiro, which enjoys a central position between the north and the south. But not a few of the clusters are really only near the sea and not on it—four of the most important ones in the south are separated from the coast by definite physical barriers, such as the escarpment 2,400 feet

* The field studies on which these observations are in part based were supported by grants-in-aid from the Social Science Research Council and from the Faculty Research Funds of the University of Michigan. The field work was done between February and September, 1938.

high separating São Paulo city from its port, Santos. Furthermore, the land communications between the various population clusters are very poorly developed, and in many cases do not exist. It is impossible, for instance, to travel overland over any well organized line of communication between Rio de Janeiro and Baía.

But the isolation of the Brazilian people from each other is



more than physical. There is an isolation, also, of ideas. State patriotism is rampant, and with this goes a considerable degree of dislike or even animosity toward the people of other states. The idea, resurrected from the past by the modern economic nationalists, that each political unit should live as independently as possible of all others—the fundamental antithesis of industrial urban civilization—is discovered in Brazil applied not only to the country as a whole, but to each state. A recent letter in a Rio de Janeiro newspaper by an army officer extolled the virtues of moving the capital city back into the interior and leaving the coast without vulnerable

points—shadows of pirate days in the ancient Mediterranean! An official of one of the southern states applied the same principles to his own state. It could support any agricultural production, he insisted, from coffee to wheat. It could and shortly would become independent of imports from other states. Meanwhile, he continued without appreciating his own humor, it would send out its wealth of fine timbers which other states did not possess. Soon, also, a steel industry was to be established, based on some deposits of high grade iron ore (which the state does actually have) and some other deposits of high grade coking coal (which the state does not have). But state patriotism went farther. I asked the official about the possibilities of finding petroleum, knowing that the character of the geologic formations absolutely precluded the possibility of the existence of oil in most parts of the state, and made the discovery of oil in the remaining parts extremely unlikely. But no: only dishonesty and graft in the federal survey, I was told, could account for the failure to locate the vast wealth of petroleum known to exist within the boundaries of this most remarkable of all states. Ideas like this can isolate fully as well as physical barriers, and may be harder to overcome because physical barriers are attacked by scientists and engineers.

Another force leading toward disunion is the very unequal economic development of Brazil. Since the end of the Empire in 1889, the state of São Paulo has dominated the politics as well as the finances of the country. Of the "ordinary income" of the federal government in 1936, more than one-third came from São Paulo alone. When, in 1930, the Paulistas lost their dominating position in the national politics as a result of the success of the Vargas revolution, they became increasingly displeased with the fact that funds derived from their industry were being poured into the poverty-stricken drought areas of the Northeast in the form of good roads and reservoirs. The bloody revolution of 1932 was an attempt on the part of the Paulistas to regain control of the nation. Now the protection of the Paulista industries over the industries of other parts of the country is becoming a matter of increasing difficulty. And none of these things are counteracted by an appeal to inherited traditions of nationality, especially as the Paulistas are to such a very large extent composed of newcomers.

Among the forces for disunion must be mentioned the vast potential wealth of Brazil. The huge reserves of high grade iron and manganese ores, the great tropical Amazon basin that could

support millions of rice-growing orientals, the vast areas of good agricultural lands suitable for colonization by Europeans, perhaps the biggest area of this sort left in all the world: all these things cannot fail to tempt not only the foreign capitalists, whose ambitions the Brazilians could utilize for their own immense gain, but also the more predatory members of the human family whose national estates are poor in these fundamental resources. The stimulation of local animosities leading toward the political separation of one part from another, and the prompt recognition of the new units in return for concessions—these are potential dangers, and the example of the success of such policies lies too thinly buried in our own past for us to fail to recognize the situation.

And finally, but by no means least, we must speak of the fundamental weakness of any government based on force. Regardless of what words are used to describe the Brazilian government, that it rests fundamentally on force is clear. Perhaps the only legal government of Brazil, says one Brazilian writer, was the government of the Empire which was illegally usurped by the revolution of 1889. That the governments since that time have had to rely more or less on the army and navy for chief support is a matter of common knowledge. Public opinion cannot make coherent pronouncements in a country where half the population is isolated in the interior, where only three million out of forty-five million can read and write, where newspapers and radio present only carefully controlled propaganda. If this is a description of a fascist state, then Brazil has been fascist for a long time—long before the word was discovered in post-war Italy. To use the word democracy in this situation is only, with apologies to Stuart Chase, to make a pleasing noise in the head.

FORCES FOR CLOSER UNION

Working against the forces of disunion, however, are several which seem to lead to a closer national unity. The new mechanical aids to rapid communication, for instance, make possible the administration of a much wider extent of territory than could have been done in the days of horses or ox-carts. Brazil may come to regard the airplane and the radio in much the same way as we, in the United States, regard the railroad—as having arrived on the scene just in time to tie together the more remote parts of the nation.

But mechanical aids alone would probably not be sufficient were

it not for two other matters. First of these is the geographical arrangement of the resources and economic regions of the country. If São Paulo occupied an isolated position near the frontiers of Brazil, the extraordinary economic advance of this one state might become a far more serious force leading toward disunion than it actually is. Located near the center, on the other hand, the danger that this political division might break away from the others is not great. That it might seek to regain its control of the federal government is obvious, but that it might seek an independent existence seems unlikely. Such action would be extremely difficult from a military point of view, as was demonstrated by the counter-revolution of 1932 in which São Paulo attempted unsuccessfully to overthrow the Vargas regime. Furthermore, the rapidly growing industries of the state serve to link this region more and more closely to all the other parts of Brazil in terms both of raw materials and of markets. In spite of much present dissatisfaction among certain groups of Paulistas, the interests of the state would not seem to lie in cutting off such large potential domestic markets as are to be found from Rio Grande do Sul to the tropical north.

What, however, are the possibilities of forming a sufficiently homogeneous unit from a group of the southern states, dominated by São Paulo? The writer's opinion is that there is no present feeling of unity among the various states which might be included in such a group. The feeling of state pride is especially great thruout the southern part of Brazil: not many of these southerners would accept easily the domination of São Paulo, especially the independent sons of Rio Grande do Sul. Regional consciousness extending across state boundaries would be easier to find in the group of northeastern states, but for these to break away from the sources of revenue in the south and southeast would seem unlikely.

The comparison of Brazil and the United States as regards the impact of the urban industrial way of living with the older rural plantation system is also of great interest. All of the nations of the western world have been experiencing, in one form or another, this clash of fundamentally different systems. The rise of big industries and the concentration of people in cities began in the modern world about the beginning of the last century around the shores of the North Sea, and from this center the industrial and urban life has been expanding in ever widening circles. The result has been a conflict between the older ways of living, essentially rural and dominated by a plantation aristocracy, and the newer ways, essen-

tially urban and dominated by the captains of industry and international commerce. This same transformation which troubled parts of Europe early in the last century, was also taking place in the United States. But in our country these two opposed ways of living were separated geographically, each finding its major expression in a different part of the country—the North and the South. Our civil war was fought on a number of fundamental issues, of which slavery was only one. Similarly in Spain, the recent civil war was able to develop as a conflict between fundamentally different ideologies, based on a neat geographical separation of the areas essentially rural from the areas essentially urban.

In Brazil, happily, no such separation exists. In the one state of São Paulo where the plantation system has reached its greatest development in the modern era, there is also to be found the chief industrial center of Brazil. São Paulo city is aptly described as the Chicago of South America. Also in the other more densely populated states from the northeast to the far south there is a similar, but smaller, combination of rural and urban, of plantation and industry. The absence of a clear geographical separation would seem to be definitely opposed to the development of internal conflicts based on really fundamental issues.

The other important force leading toward a closer union is the new intellectual movement in Brazil. In the long run the importance of a language is determined by the importance of its literature. Excepting the relatively few great masterpieces, most of them old, the Portuguese language has contained little of importance for Brazil outside of the exchange of the verbal trivialities of day to day living. The fact that most Brazilians used this one language could scarcely be counted as a force for closer union. But recently, since the World War, in many different intellectual fields there has appeared a group of young writers producing books and articles of real importance. In sociology, politics, history, and literature there is already a substantial current of new writings which is not simply composed of bursts of patriotic eloquence or of poor copies of European modes of literary expression. As a force leading toward the closer unification of Brazilian nationality this intellectual movement is perhaps the most important fact of the contemporary scene.

These observations touch on only a few of the complex currents now troubling Brazilian life. To assign relative values to them is impossible. We might be tempted to place too much importance

on the absence of fundamental issues of ideology clearly separated geographically. The feeling of state patriotism, for instance, might be quite sufficient, even in the absence of a fundamental issue, to provide the necessary line of cleavage. The unknown factors are still too numerous to make prediction profitable.

We cannot escape the observation, however, that so much undeveloped wealth in Brazil is a source of potential danger in the world. If the vast interior were covered with ice like the interior of Greenland, no one would worry about the scanty and isolated groups of people around the coast. But Brazil possesses too many riches that the world will need, riches not only of mineral deposits, but perhaps more important, habitable space. We can only learn to watch Brazil realistically, avoiding the oversimplification of Brazilian problems by attempting to describe them in terms of contemporary European politics, or in terms of the experiences of the United States during the westward movement of our frontier half a century ago. Neither of these analogies fits the actual situation. We can only hope that some way will be found to fill the emptiness of the Brazilian interior with sufficient man power to create real economic values there; and that the means to accomplish this will be found in time to prevent the separation into smaller and still weaker parts. Only in this way can Brazil develop the internal strength to resist the perils that lie ahead.

THE LANDSCAPE IN ITS ANNUAL CYCLE ON THE PRAIRIES OF SOUTHWEST LOUISIANA*

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How does one visualize the climate of a region described as having a mean minimum monthly temperature in January of 53°, a mean maximum monthly temperature in July of 82°, and an annual mean of 68°? What are the seasons like, and how would one describe them? As surprising as it may seem, one resident who is thoroly acquainted with such a climate said that in it "among the poorer people there is more suffering from the cold of winter than from the heat of summer." He added that one can cool off in summer by slowing down but in winter one can't get warm by stopping. Whether true or not, there is considerable basis for his observation.

The failure of the temperature and precipitation figures to adequately describe climatic conditions as they are actually experienced on the Prairies of Southwest Louisiana prompted this attempt at a different approach. It makes use of the vegetation in its annual cycle of change and the routine of the farmer and cattleman for they give a much more complete picture of the conditions as they occur than do the means derived from reading the thermometer and rainguage.

This paper attempts the description of that yearly cycle on the Prairies which form a portion of the old Attakapas Country, the region in which the writer was reared. His personal observations are supplemented by some written records and by clear and vivid recollections of "old timers" on the Prairies, some of which are given verbatim. The inset statistics are from the United States Weather Bureau Data.

Winter

Altho the winters are short, they bring about a dullness of appearance in the landscape which is characteristic of the microthermal climates found in far more northerly latitudes. Besides the liveoak and conifer, there are few trees that preserve their verdure thruout all months. The deciduous trees shed their leaves, and the annuals die leaving no trace of green. Long before Christmas,

* This paper was adapted from a section of the Ph.D. thesis submitted by the writer in geography at the University of California in 1937.

CLIMATIC DATA FOR SEVEN PRAIRIE STATIONS

(Taken from *Climatological Data of the United States by Sections*, Washington, 1937)

Temperature

Station	Miles from the Gulf	Elev. in feet	Year's record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Abbeville	27	12	47	53.5	55.8	62.1	68.6	74.2	80.2	81.2	81.5	78.3	69.5	60.6	53.9	68.3
Crowley	45	29	27	54.2	57.0	61.0	68.1	71.3	80.5	82.0	81.9	78.3	69.2	60.1	54.3	68.4
Grand Coteau	60	59	52	53.4	55.7	61.9	68.4	74.0	79.9	81.7	81.5	77.9	68.4	59.7	56.0	68.1
Jennings	40	30	40	53.0	54.8	61.6	67.9	74.1	80.5	82.1	82.3	78.7	69.6	60.2	53.4	68.2
Lafayette	50	36	49	52.1	53.3	61.7	68.3	74.2	80.1	81.6	81.6	78.1	68.7	60.1	53.7	68.0
Lake Arthur	33	10	35	53.9	55.8	62.2	67.7	74.4	80.9	82.5	83.3	78.8	69.5	61.0	54.0	68.6
Lake Charles	30	22	34	52.0	54.7	61.6	67.6	74.1	80.4	82.5	82.6	78.9	70.3	61.3	54.6	68.3
MEAN				53.30	55.30	61.74	68.08	73.76	80.36	82.00	82.10	78.42	69.31	60.42	54.27	68.27

Precipitation

Abbeville	—	—	—	4.62	4.05	3.46	4.16	4.96	5.65	7.31	5.26	5.29	4.27	4.03	5.46	58.52
Crowley	—	—	—	5.10	4.48	3.73	3.79	4.67	4.66	5.93	5.48	4.28	3.72	4.02	5.76	55.62
Grand Coteau	—	—	—	5.45	4.76	4.11	4.38	5.51	5.03	6.55	5.35	4.09	3.53	3.93	6.35	59.05
Jennings	—	—	—	5.25	4.20	3.52	3.93	5.22	4.68	5.81	5.55	4.14	3.62	4.08	5.92	54.92
Lafayette	—	—	—	5.28	4.47	4.00	4.20	4.90	5.65	6.90	5.28	4.29	3.96	3.83	5.91	58.66
Lake Arthur	—	—	—	5.91	4.07	3.12	4.28	5.08	5.55	6.58	5.31	4.77	4.02	4.75	6.14	59.58
Lake Charles	—	—	—	4.76	4.38	3.66	4.55	4.93	4.65	5.88	5.93	4.54	4.40	4.09	5.85	57.62
MEAN				5.20	4.34	3.66	4.18	5.04	5.12	6.42	5.45	4.48	3.93	4.10	5.91	57.71

According to the Koppen classification, the climate of the Prairies is *Cfa.*: humid mesotheraml with the temperature of the warmest month over 72.

Temperature of the warmest month, 82 (July and Aug.)
Temperature of the coldest month, 53 (January)
Mean annual temperature, 68.

Precipitation for the wettest month, 6.42 (July)
Precipitation for the driest month, 3.66 (March)
Mean annual precipitation, 57.71

Fig. 1. Winter scene on Bayou Plaquemines which crosses the Prairies, Acadia Parish.

the sugar-cane stubbles and leaves, the cornstalks, cotton stalks, and the rice stubbles have lost all suggestion of the verdant aspect of which they were a part during the spring and summer. The contrast is definite and complete. The same strong contrast presented in the deciduous trees is also seen in pastures and in roadside weeds.

Thru the winter, local weather conditions are determined largely by wind direction. A high air pressure of the north sends cold winds unimpeded down the Mississippi Valley, and such winds have been known to cause temperatures to drop from the seventies to the twenties within a twenty-four hour period. With the lowering of the air pressure in the interior, there is a reversal of wind direction, and indraughts of balmy air from the Gulf cause temperatures to again rise to the seventies.

The cold spells have long been the terror of the Prairies. Altho they last but a few days, the harm wrought by them is ofttimes great. Stock and humans alike suffer from them because they are

ill-prepared to withstand them. During the great period of cattle-raising on the Prairies, large numbers of cattle, when lean and hungry, succumbed to the chilling blasts from which they had no protection at all. The winter of 1877 brought forth the following item in an Abbeville newspaper:

> Cattle are commencing to perish from the inclemency of the weather and lack of forage, and if the winter continues as severe as it is now, the grim skeletons which will dot the surface of the Prairies will be legion.

Robin, a Frenchman who traveled in the Prairies in the early years of the last century, painted a gruesome picture of the great numbers of cattle that were dying from cold and starvation. The *vacherie* owners did nothing about the situation except skin the dead animals. Those same catastrophes have reoccurred during this century. Following one of these cold spells a prominent cattle man was asked to talk at a Farmers' Institute on the subject of windbreaks for stock. He advocated the planting of hedges of Cherokee Rose, of which there were a good many in some sections of the Prairies. A voice from the audience asked what protection he had for his stock. In all seriousness he answered, "Three barbed wires, and I am strongly considering raising it to four."

The losses, as indicated, were due more to the lack of forage for the cattle than to the low temperatures. The pastures were ruined by a peculiar condition. Heavy frosts during drought at the beginning of the winter killed the grass; then it was susceptible to decay during the rains which followed. Wet rotting ruined the grass, while on the other hand, if the rains had preceded the frosts, it would not have been seriously injured for grazing. And there was still another phase to the problem. To quote one cattle man:

> Some of the winters were mild, and the cattle fared better than they did in some summer droughts. But sometimes even the cattle that were in good order perished in a blizzard because the storm kept them from feeding. It seemed to burn the tallow right off of them. The range horses used to suffer from the cold also, but of course our domestic horses and mules are fed.

The cold spells still occur, but the casualties among the stock are greatly reduced because of improved conditions of feed and shelter for them. Even so, the stacks of rice straw, hay and the small pastures as they are utilized at present are insufficient to keep the stock from falling off in weight, and frequently before the winter is over, many cows have the appearance of skeletons.

While the cattle are struggling against cold and starvation, hogs are having their most lavish season. They, however, have had their

low ebb during the summer and harvest season when they were confined in small pens with little to eat. But after All Saints' Day when, according to the custom of the people, all crops must be in, hogs are turned loose to glean the corn fields and the potato patches. They seek ears of corn that have been overlooked and they root out sweet potatoes that the plow failed to turn up and roots that were too small to warrant picking up. By the first of the year the hogs are in fine condition—in fact, the best condition that most of them ever experience for at that time a great many of them are butchered.

Between the cold spells, the balmy winds from the Gulf blow and ultimately bring rain. The winter is thus a succession of changes between north winds and warm south winds, the one bringing clear cool days, and the other, warm, mild conditions with considerable precipitation. An intermediate type of condition is the clear weather with little wind, during which the daily insolation causes temperatures to rise and bring about the days which attract tourists to the South. It is during these days of the late winter and early spring that the farmers do their early field work.

Spring

With the advance toward spring, the fields are plowed, and each additional plowed patch adds to the surface of grays, browns, and blacks until about the first of March, when every square foot of land that is to be planted has been turned. At that time vision is least impaired by vegetation, and seemingly there are no greens in the landscape, except for the liveoaks, conifers, and perhaps some young grass which is just beginning to grow in the pastures. With the warm days of early spring, budding and growth of leaves bring one of the most abrupt changes of the year, a change that can be exceeded in rapidity only by a prematurely early fall frost which kills plants that held their color thru the entire growing season.

The crops altho planted early, fail for a time to obscure the ground, and the flatness of the entire scene is maintained thruout March. Altho corn is sometimes planted and up before the end of February, March is ordinarily the month for its planting. Corn and sugar-cane are the first crops to manifest themselves, but their early growth seems slow.

Rice and cotton are planted a little later than corn. Between April tenth and the fifteenth, hundreds of farmers are seen planting their cotton. Also at this time, rice planters are making every

minute count. The cotton grows very slowly for a month or so, but almost immediately the rice, because of artificial irrigation, takes on a very different aspect. The flooding of rice, a process which is delayed until the rice is several inches high, takes place in the month of May. The rice is never entirely covered with water, and it soon appears as a most pleasing mass of green. The small patches of Irish potatoes which had been planted early are dug in

Fig. 2. Spring scene in rice field flooded in May, Bayou Queue de Tortue.

May. Of all the plants, native or cultivated, it seems that cotton is most retarded in imposing a verdant aspect upon the landscape.

As might be inferred, during the spring months, farm work is carried on at full capacity by both men and teams. The different crops dovetail splendidly in their needs, and the teams are worked down to a low ebb indeed before crops are ready for laying by. This condition of the teams is especially to be noted in the cotton-and-corn country where the horses and mules are small and poorly fed, and where the grass at this season contains little nourishment. By the end of May the corn is all laid-by, and at the end of June, when work of laying-by sugar-cane and cotton is finished, the sweet potatoes are planted.

Summer

The summer rains which appear chiefly as thunder showers, often begin about the eighth of June, which is St. Medard's Day. From then on they come with such regularity that the Acadians, who form a majority of the population, frequently mention the saint's name in connection with a fascinating myth accounting for

Fig. 3. Summer scene on Bayou Vermillion.

the prolonged rainy or dry spells as the case may be. Tradition has it that in olden times the inhabitants went on picnics during roasting-ear time, but they never invited St. Medard, who naturally wanted to go. He decided that since he could not attend, he would rain out the picnics. If his attempt was successful on his birthday, June eighth, he could make it rain at some time on every day for forty days. In case he failed to make it rain on that date, a forty-day drought followed. Similarly, if he could make it rain on the forty-first day, after his rainy spell, it would continue to rain for another forty days. The wet and dry spells of the summer season seem to indicate such a trend, and the surest way to fore-

cast weather for the morrow is to say that "it will do tomorrow what it is doing today."

These summer rains are intense but are not usually heavy. It is the spring rains which bring the heaviest precipitation—sometimes eight or nine inches in a day. Sensible temperatures are augmented during the summer by the high relative humidity, and the steamy air of some hot, wet days is perhaps the most impressionable feature of the summers of South Louisiana for, altho "fanned and tempered by the breezes of the Gulf," they are still too salubrious for the greatest exertion and perfect comfort.

July is the month for rest and relaxation for both man and beast. Corn is bent during this month, and odd jobs such as fixing fences, hauling wood, cutting corn tops for the stock, may occupy a goodly portion of the time of the more industrious. Altho the cultivation of cotton continues later nowadays than formerly and some of the farmers "lay down the hoe only in time to pick up the cotton sack," the pressure is off the farmer at this season. Nothing that one may do now will help or hinder the crop, and the *habitant* can now idle away his time in town, or on his front porch, or under a china-berry tree in the front yard. "And on the Fourth of July we most generally have ripe figs, green corn, and watermelons."

In July sugar-cane is more than head-high, and it appears to be greatly retarded, but it still has four months in which to mature. Some cotton is picked as early as the latter part of July, and that is the time for cutting the earliest rice. August finds cotton-picking and rice-cutting at their height.

Fall

Corn has its turn immediately after the cotton is picked, but the cutting of cane never begins until after the middle of October. Cane-cutting is delayed as long as possible for the growers know that each additional cool fall day increases the sucrose content of the cane.

Summer and fall hurricanes occasionally visit the Prairies and leave in their wake a goodly number of felled china-berry trees. One on September 20, 1909 was especially destructive as were others recalled by the old timers and records in the old newspapers for the fall season. According to about thirty newspaper accounts of equinoctial storms, the one in 1877 seems to have been most destructive and the editor of the *Lake Charles Echo,* Calcasieu Parish,

seems to have lost all restraint in describing it:

> The equinotical storm was very severe in lower Calcasieu, and especially along the Gulf coast in Cameron Parish. Many fruit trees were blown down and thousands of oranges blown from the trees. In Cameron the hurricane did immense damage to crops prostrating the cotton, and actually tearing up sweet potatoes by the roots. Nothing yet has been heard of a few large vessels trading at this port, which were on the Gulf during the storm.

But after all, these storms are not feared, and they are seldom taken seriously by the inhabitants.

The leaves of the catalpa trees fall in September. The chinaberry trees keep their leaves longer, and they turn to a beautiful yellow with the first frost which is apt to come in November. The changing of the greens of spring and summer to the browns and

Fig. 4. Fall scene, rice in the shock in Acadia Parish.

yellows of fall is not unpleasing. In the case of rice especially, the mass of green turns to a rich yellow and does not lose its beauty even when the rice is in the shock. The cotton fields whiten as the bolls open, but the pickers soon change the scene to one of standing stalks with only a few fast-turning leaves upon them. Sugarcane holds its color longest, yielding its green only with the first frost which turns its leaves to a light buff color. The dangers of frost, rain, and mud are feared, and they tend to speed up cutting which is finished in December, and thus the last of the crops is harvested. Winter draws on, and the cycle is completed.

A DEVICE FOR TEACHING THE SUN, SHADOWS, AND SEASONS

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"Seeing is believing." This is a saying we often hear and believe to be true in teaching subject matter that is complex, vague, abstract, or in other respects difficult to explain to children.

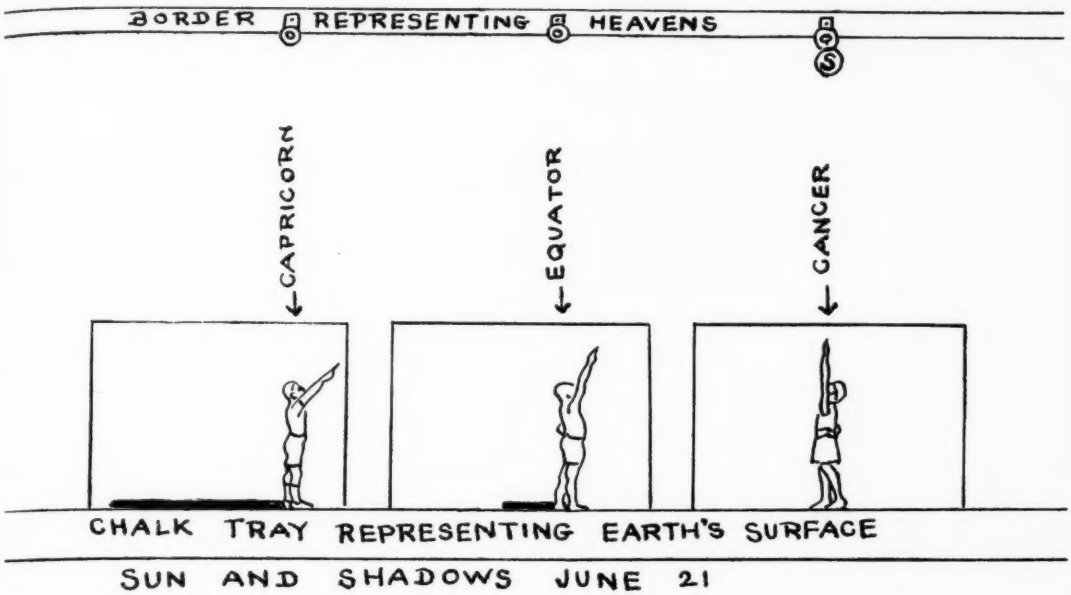
The changing of the sun's position, and the corresponding changes of shadows and seasons is one of these "difficult-to-explain-to-children" problems of fourth grade: for this is where it is found as part of organized subject matter.

Children of the northern hemisphere who study different regions of the earth, beginning at the equator and progressing gradually toward the north pole, have the simplest background for this study; because there are more regions to study in the northern hemisphere.

The writer has originated a device, using with elaborations, the idea and pictures for the teaching of the height of the sun, the length of shadows, and resulting temperatures, as given by Barrows and Parker in their *Journeys in Distant Lands.* This device was worked out by using a blackboard, with chalk tray below and wooden border above, which ran across the entire front of a good-sized classroom, and a set of large picture cards which the writer made. With them was used an orange disc, representing the sun, which could be moved from place to place along the border above the blackboard. The procedure used was as follows:

(1) Let the chalk tray represent the surface of the earth; since it parallels the earth's surface. Along the blackboard, above the chalk-tray were marked spots, at proportionate distances, to show where the Tropic of Capricorn, Equator, and Tropic of Cancer occurred on the earth's surface. (In early fourth grade studies are made of regions which occur at these points, and later, of other regions which lie at greater distances from the equator. The plan may be gradually enlarged more and more as each new region is added.)

(2) Let the wooden border above the blackboard represent the heavens from which the sun shines. On this border, directly above the spots marked to represent the Tropic of Capricorn, Equator, and Tropic of Cancer on the earth's surface, were fastened loops, on which to hang the orange disc representing the sun in its posi-



This sketch shows the set-up on June 21 when the sun is directly overhead at noon at the Tropic of Cancer.

tions on December 21, March, 21, June 21, and September 22 respectively.

(3) A set of three large colored picture cards[1] of the child of each region was made by the teacher showing (a) the direction in which the child pointed to the sun (b), the direction and length of his shadow, and (c) the kind of clothes he needed when the sun was in the respective positions.

(4) A game was then played by the teacher and children using the blackboard chart, and the sets of pictures in the following manner. (a) The teacher asks where to place the sun at any of the aforementioned dates. When given the correct direction she places the orange disc at the appropriate place above the chart. (b) A child is chosen to represent a child of each region used in the study. He selects from the set of cards the picture showing the child of his region, pointing to the sun where it shines on the chart, and showing the shadow at that sun position, and kind of clothing the child would wear at that season. He stands the picture at the place he thinks proper beneath the chart on the chalk tray. (c) After all pictures are in place the class checks as to correct choice and

[1] The smallest of these cards was nine inches in height and twelve inches in length. The length of the other cards increased proportionately with the lengthening shadows.

placing of pictures. The teacher points out that seasons are in reverse north and south of the equator and pointing to the position of the sun draws the reason from the children. (d) The teacher changes the position of the sun, other children choose pictures, and the class checks again. This process is repeated until the teacher and children feel that the problem has been solved to the satisfaction of the group.

As each region or country is studied this process can be repeated adding the new unit. In this way the study is cumulative and also a review in recapitulation. The children find the device interesting and attractive to work with; but, what is better, it solves the problem of sun, shadows, and seasons for the children; since it visualizes situations for them. It has shown that for them "Seeing is believing."

COME VISIT A CATTLE RANCH

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Very few people really know the details about cattle ranches. Many boys and girls know about cowboys and ropin' horses, about sagebrush and cactus, wranglers and "night-hawkers," for everyone reads cowboy stories and sees "Western" movies. The stories that we read and the moving pictures that we see do not really tell us about ranching because they are written to be "thrillers." They give us the "blood and thunder" side of the West, and we are inclined to forget that there is a real West that is important to us every day that we live. It is the real West that grows the lambs and calves that are later in their lives fattened to make the beefsteaks and mutton chops for our dinners.

Let us get some facts about the ranches on which these calves and cattle are grown and how the people who take care of them live.

Ranch Sites Are Remote

Were we to go to a ranch we would leave the highway or railroad and drive perhaps from fifty to a hundred miles or more into the country to the ranch. People wonder why ranchers do not have their ranches close to the railroad and close to town. That is impossible because the cattle need a large area of grazing land and need to be away from people and traffic in order to do well. The

country that you would see on the way to the ranch would be very barren looking to most of you; that is because you are used to seeing land that is covered with green grass and trees. Range or grazing land does not have trees on it and the grass is scattering and thin. It is very rich tho and makes the cattle that eat it much fatter than green grass would. If showers come thruout the summer and keep the grass green, ranchers are disappointed and say that the cattle won't weigh very heavy.

The Ranch-House Is Hospitable

When we arrive at the ranch we find the house to be of log, probably six or seven rooms, built close to the ground. The roof may be of dirt, called gumbo. Gumbo seals over in the rain in the summer and is very warm in winter. The eaves of ranch houses are usually very low, four or five feet from the ground. This is because the dirt roofs have to be quite flat and because in the windy, snowy ranch country a low house is warm in the winter. Very few ranch houses are two stories high. The logs turn a grayish brown that blends with the natural color of the country; when the dirt roofs grow cactus and vetch or gumbo lillies, ranch houses are distinctively beautiful indeed.

Some ranchers build frame houses but if they do they have to pay high prices for the lumber which has to be shipped in from long distances. Anyone can find enough logs in a creek bottom for a house, near where he lives.

The reason that most ranch houses are large is that in the Western states people live a long distance apart. When a person goes away from home he frequently has to stay all night at some other ranch. This makes all the rancher families very hospitable because they just become used to having company. This was particularly true before ranchers came to have automobiles.

"Don't fail to stop in to see us when you are over on our range!" is the usual good-bye in the ranch country. If it storms then your company stays until the weather is fair again. This may be a day, a week, or even longer especially in the winter.

On the inside of the house the rooms will be large and cool in the summer and snug against the winter's blizzards. Tho the ranchers do not spend much money on the exterior of their houses, they often furnish the interior quite well and comfortably. We see good rugs, excellent furniture, pictures, musical instruments, and radios at ranchers' homes.

Other Buildings Are Necessary to Ranchers

At a ranch there are many other buildings besides the ranch-house. The store-house is one of the most interesting of these. Here are stored all the groceries, tools, and general ranch supplies. Since ranchers live so far from town they shop once or twice a year and buy large supplies of everything that they will need for months ahead. Unless someone is ill or something unforeseen happens, the rancher will not go to town until he has run out of almost all his supplies.

Many ranches have an ice-house. The ice is packed away in saw-dust or hay in the winter, then in the summer men get out the large cakes of ice for the refrigerator and the old fashioned ice-cream freezer that is turned by hand.

We look at the barn, shed, and corrals next. The rancher has to tell us which building and where the barn is, for we think that for the large house and so many other buildings there should be a large barn as we have seen on farms in the cold humid parts of America. We are told in the latter sections that the large barns are for keeping hay and that dairy cows have to be kept in barns in the winter. On ranches they do not keep dairy cows because dairy breeds and beef breeds are so different, and it does not do to mix the breeds. The rancher says that he would have to have several barns and large ones, too, to hold all the hay (cut from the flats of the creek or river) that he has to have to feed his cattle in the winter. Besides barns for hay are only necessary where there is a considerable amount of rainfall.

The barn, like all the other buildings, is built of logs, and has a dirt roof. Instead of windows there are board flaps that hang down over the openings to the mangers. When the cowboys come in from riding, they put hay in thru these "windows" for their horses. On the opposite side of the wall from the mangers are rows of large wooden pegs driven into holes bored in the log wall. These pegs are worn smooth; one or two have saddles hanging on them. One stirrup of the saddle is slipped over the peg and the bridle hangs from the horn of the saddle. Thrown over one of the saddles is a bright colored Indian rug. This is a hand-woven Navajo blanket. It is all wool and very handsome looking. If a rider does not use a good wool blanket on the long hard rides his horse's back will get sore. That is not a wonder; the stock saddles are large and heavy; some of them weigh over seventy pounds. The cowponies are not large horses, but cowboys are often large men and their

chaps, boots and spurs, and mackinaws make them weigh still more. A good wool Navajo Indian blanket takes up the perspiration from the horse and at the same time keeps him so well padded that he will not have saddle sores.

The corrals seem to us only a maze of "pens." When cattle are being branded they are sorted very carefully again and again. Each calf is branded the brand of his mother. On the corral fence we see the branding irons, heavy strips of metal made up into letters and signs. One iron is just a bar, and when the branders do not have the right letter they just heat the bar iron and draw the brand that they want onto the calf—"run" it on the cowboys say.

In one of the corrals is an immense old post that is worn into grooves and polished as smoothly as a floor. The corral is round and the post is in the center. It is a "snubbing" post around which a cowboy loops his rope after he has roped a wild horse or cow. The lasso pulls tight and chokes the animal but it can get its breath by coming in closer to the "snubbing" post, so little by little in this way the cowboy gets up to a wild horse to put a bridle or hackamore on him for the first time. The cowboy has to do this when he first gets a range horse in to "break" or train to ride.

"Bronc-Breaking"

To "break" a range horse is a difficult task. A poor "horse-breaker" will spoil a horse by letting him start bad habits that must be broken later on. For instance, a good "horse-breaker" always rides his bronc, no matter how hard the bronc bucks. If the cowboy is thrown off on the first ride, the horse will know his success against the rider and will always be trying to buck riders off. If the horse is succesful against the rider and is not broken of this bucking habit immediately, he becomes an "outlaw" and is never a safe riding horse. A spoiled horse can never be depended upon not to buck; he often chooses a moment that the rider is most unsuspecting to unseat his burden. Horses that have become confirmed "outlaws" are used as rodeo horses. As they are used in rodeos they become better and better bucking horses and finally used as test horses among the very best bronc riders who are competing for the silver mounted saddle and the title, "Best Bronc Rider in the World."

Horses that have lived their young years on the prairie never

become as gentle saddle horses as those that have been raised in pastures.

Near the barn are the sheds. There are several and they are practically empty. In the winter they are used to protect cattle from the raging blizzards, and for cattle that are sick and in need of especial care. In one shed there is a store of "cotton-seed cake" or "oil-cake" which the ranchers use for winter feed instead of grain. Only the very thin cattle get any food other than hay. Most of the herd are fed hay, tho some of the strongest of the number live out in the range pastures the whole winter thru.

WELLS

On ranches the wells are usually deep artesian wells, sometimes flowing and sometimes having to be pumped. A windmill is the pumping device used and about the base of the windmill is often built a pumphouse. In this there are pipe wrenches, grease cans, machinery oil and an array of general tools. Because the wind seemingly never ceases, it may be a surprise to find a small gasoline engine also in the pump-house. This is used in the winter for then when several hundred head of cattle are at the ranch, it may be calm for days at a time. Unless there is an engine in the ranch equipment the men have to pump water by hand for all the cattle.

BLACKSMITH SHOP AND BUNK-HOUSE

Another of the log buildings is a blacksmith-shop. This is where the rancher mends everything from machinery to kitchen utensils, the rancher tells us. Here he keeps "parts" for his mower, rake, pumps, wagons, and various other machines that are found on a well-equipped ranch. Under the same roof with the blacksmith shop is another building, which the rancher calls the bunk-house. It is very plainly furnished with home made chairs and tables. The beds look very hard. The mattresses are of straw, and the whole is covered over with a tarpaulin or "bed-sheet." This "tarp" keeps the bed clean and dry when the cowboys pack up their beds to go on the "round-up."

A coal-oil lamp sets on the table, and beside it is a large box of matches, a saddlery catalog, and one or two very worn decks of cards. The table is scarred and cut into a maze of brands and there are even some few brands cut into the log walls.

Now the rancher tells us that we have seen only the least important part of the ranch, and that he has much more that he could tell us about the cattle and the range.

A BASIC REFERENCE LIST OF GEOGRAPHIC TERMS FOR FOURTH GRADE GEOGRAPHY*

One-cycle Series

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Vocabulary in general and technical terms in particular are vital problems in both teaching and learning. The main purpose of this study is the development of a basic list of geographic terms other than place names for use by teachers and writers of geographic materials at the fourth grade level.

A geographic term is difficult of definition. The new geography seeks to confine itself to a science of man's relation to his natural environment. But, "it would be absurd, of course, to assume that no relationships between natural items and no relationships between cultural items have a legitimate place in truly—that is, distinctively—geographic material."[1] "Accordingly, geographic content, regardless of what it is called or when and how it is introduced into the curriculum, consists of facts of varied nature so selected, combined, and manipulated as to lead to accurate understandings of cultural-natural relationships, and includes only facts so used."[2] The application of such a definition provides for a wide range of individual judgments and is therefore highly subjective. The geographic terms listed hereafter seem, in the judgment of the writer, to meet the requirments of this definition.

Early investigators of the problem of vocabulary of school readers concerned themselves with the vocabulary of the reading textbooks. Integration of the results of extensive investigations of this field has resulted in standardized reading vocabularies. Any attempt at a standard list of terms peculiar to a specific instructional area probably needs to begin in a similar way—with the school textbooks in that area. This the writer attempts.

Eight fourth grade one-cycle geography texts were analyzed, the geographic terms listed and their frequency of appearance recorded. These books contained 1679 such terms. Six hundred two

* This article is an abstract of the writer's Field Study Number Two submitted to Colorado State College of Education in partial fulfillment of requirements for the degree of Doctor of Philosophy. The materials were prepared while the writer was superintendent of schools at Scottsbluff, Neb.

[1] Edith Putnam Parker. "Investigating the Curriculum in Geography," *Thirty-second Yearbook of the National Society for the Study of Education,* Chapter VIII, 1933.

[2] *Ibid.*

of these terms appeared in some one of the books and not in any of the others; 204 were common to but two of the books. These were eliminated and a working list of 873 terms was arrived at by limiting the list to the terms that appeared in three or more of the books. Many of these terms appeared so infrequently that it seemed wise to further limit the list. A critical examination of the tabulations led to the setting up of the criteria of spread weighted by frequency of appearance. To be included in the final list, a term must meet one of the following criteria:

1. Spread of four with frequency of 24.
2. Spread of five with frequency of 20.
3. Spread of six with frequency of 18.
4. Spread of seven or eight without regard to frequency.

A further limiting factor was applied—that of social utility. The only study the writer knows which attempts to determine social utility of geographic terms other than place names is a Master's Thesis by Marion O. Pease.[3] If a term appeared in this study, the criteria of spread only were applied and the criteria of frequency were disregarded.

When the criteria were applied to the working list the number of terms was reduced to 539 distributed as follows: animals and animal products, 68 terms; plants and plant products, 61 terms; terms pertaining to people, 53 terms; names of persons, 4; terms designating industries, 13; mathematical terms, 13; miscellaneous or unclassified terms, 327.

TABLE I

Appearance of terms in other studies:

Total number of terms in basic list		539
In representative Third Grade Geography		195
In Science Series (Grades one to three)		167
In Thorndike (First 5000):		399
First Thousand	154	
Second Thousand	108	
Third Thousand	60	
Fourth Thousand	48	
Fiftb Thousand	29	
In Buckingham-Dolch List:		451
Below Grade Two	214	
Grade Two	62	
Grade Three	52	
Grade Four	63	

[3] Marion O. Pease. *One Measure of the Relative Value of Geographic Terms.* Unpublished Master's Thesis, University of Iowa, 1929.

Grade Five	29	
Above Grade Five	31	
In Pease (Social Utility):		275
In Pressey:		271
Most Important	176	
Should be Known	90	
Not Very Important	5	

A study of Table I reveals some significant and interesting facts.

1. There is an overlapping of terms in grades and in subject matter areas. A representative third grade geography contains, with a frequency of five or more, 195 of the 539 terms in the basic list.
2. A representative science series, designed for grades one to three inclusive, contains 167 of the terms.
3. There are 322 of the terms in the first 3000 in the Thorndike list, 48 in the fourth thousand, and 29 in the fifth thousand.
4. There are 328 of the terms that have a grade placement of grade three or lower in the Buckingham-Dolch List; 63 in grade four; 29 in grade five; and 31 above grade five.
5. Two hundred seventy five terms have social utility as measured by Pease findings.
6. Pressey's[4] earlier report contains 266 of the terms in the basic list; 176 of these are "most important" and 90 more "should be known."
7. Pressey's[5] "Fundamental Vocabulary for Elementary School Geography" contains 139 terms in common with the basic list.

There are serious limitations to this study. No attention has been given to the meanings of the terms. The basic list is limited to single word terms. Dual and multiple word terms such as trade center, railway station, etc., would constitute another study. The validity of the list is limited by the limits of the judgments of textbook writers, by the validity of the criteria used, and by the very meagre evidence of social utility.

It is not to be expected that the basic list derived here shall constitute a final list. It is to be hoped, however, that it can serve as a reference list for teachers in instruction and testing. It ought

[4] Luella Cole Pressey. *The Technical Vocabularies of the Public School Subjects*, Section 9, Geography. Public School Publishing Company, Bloomington, Illinois.

[5] Luella Cole Pressey. "Fundamental Vocabulary in Elementary School Geography," Journal of Geography, Vol. XXXII, 1933.

to help textbook writers to considerably limit the number of different geographic terms they use in books written for the fourth grade.

LIST OF TERMS

Animals and Animal Products

1. animal
2. antelope
3. ant
4. bear
5. beast
6. beef
7. bird
8. buffalo
9. butter
10. butter fly
11. camel
12. caribou
13. cattle
14. cheese
15. chicken
16. clam
17. cocoon
18. cod (codfish)
19. cow
20. crocodile
21. deer
22. dog
23. donkey
24. duck
25. egg
26. elephant
27. feather
28. fish
29. fur
30. goat
31. goatskin
32. hair
33. herring
34. hides
35. hippopotamus
36. hog
37. horse
38. insect
39. ivory
40. kangaroo
41. lamb
42. leather
43. leopard
44. lion
45. mackerel
46. meat
47. milk
48. monkey
49. mosquito
50. ox (en)
51. oyster
52. penguin
53. pig
54. polar bear
55. pork
56. rabbit
57. reindeer
58. seal
59. sheep
60. silk
61. silkworm
62. skin
63. snake
64. stork
65. tapir
66. walrus
67. whale
68. wool (en)

Plants and Plant Products

1. apple
2. apricot
3. bamboo
4. banana
5. barley
6. bean
7. brazil nut
8. bulb
9. bush
10. chocolate
11. coffee
12. corn
13. cotton
14. date
15. fig
16. fir
17. flour
18. flower
19. fruit
20. grain
21. grapes
22. grapevines
23. grass
24. hay
25. hyacinth
26. lemon
27. log
28. lumber
29. manioc
30. moss
31. mulberry
32. nut
33. oak
34. oats
35. oil
36. olive
37. onion
38. orange
39. palm
40. peaches
41. peanut
42. pineapple
43. plant
44. potato
45. rice
46. rye
47. rubber
48. spice
49. straw
50. sugar
51. sugar beet
52. sugar cane
53. sweet potato
54. tea
55. tobacco
56. tree
57. tulip
58. vegetables
59. vines
60. wheat
61. wood

Terms Pertaining to People

1. African
2. American
3. Arab
4. Australian
5. Bedouin
6. captain
7. chief
8. Chinese
9. Dutch
10. Egyptian
11. English
12. Eskimo
13. European
14. explorer
15. family
16. farmer
17. fisherman
18. foreigner
19. German
20. Greek
21. guide
22. herdsman
23. hunter
24. Indian
25. Italian
26. Japanese
27. king
28. Lapps
29. merchant
30. miners
31. native
32. negroes
33. neighbor
34. nomad
35. Norwegian
36. passenger

37. people
38. Phoenician
39. pilot
40. pygmy (pigmy)
41. Roman
42. rubber-gatherer
43. sailor
44. settler
45. shepherd
46. Swiss
47. teacher
48. tourist
49. trader
50. traveler
51. tribe
52. white men (race)
53. worker

Persons

1. Amundsen
2. Byrd
3. Columbus
4. Peary

Industries

1. agriculture
2. farming
3. fishing
4. grazing
5. hunting
6. industry
7. manufacturing
8. mining
9. shipping
10. spinning
11. threshing
12. trading
13. weaving

Mathematical

1. Antarctic Circle
2. Arctic Circle
3. Big Dipper
4. equator
5. globe
6. North Pole
7. North Star
8. pole
9. season
10. South Pole
11. tropic
12. Tropic of Cancer
13. Tropic of Capricorn

Miscellaneous

1. air
2. airplane
3. airship
4. altitude
5. anchor
6. apartment
7. area
8. ashore
9. automobile
10. autumn
11. bank
12. barge
13. barn
14. barren
15. basin
16. bay
17. beach
18. belt
19. blizzard
20. boat
21. boundary
22. branch
23. breeze
24. brick
25. bridge
26. buoy
27. build
28. building
29. built
30. bus
31. business
32. camp
33. canal
34. canoe
35. capital
36. car
37. caravan
38. cargo
39. cart
40. center
41. channel
42. church
43. city
44. clay
45. clearing
46. cliff
47. climate
48. clock
49. cloth
50. clothes
51. clothing
52. cloud
53. coal
54. coast
55. coastal
56. coast line
57. colony
58. continent
59. copper
60. country
61. county
62. course
63. crop
64. current
65. dairy
66. dam
67. deck
68. delta
69. desert
70. diamond
71. dike
72. direction
73. discover
74. distance
75. distant
76. dock
77. dory
78. downstream
79. drain
80. dune
81. earth
82. east
83. eastern
84. eastward
85. electric
86. embroidery
87. engine
88. explore
89. export
90. factory
91. fall (s)
92. farm
93. farmhouse
94. ferryboat
95. fertile
96. fields
97. fiord (fjord)
98. fire
99. flock
100. flood
101. fog
102. food
103. foot
104. foreign
105. forests
106. freight
107. frost
108. fuel
109. furniture
110. garden
111. gasoline
112. geography
113. geyser
114. glacier
115. globe
116. gold
117. goods
118. gorge
119. government
120. grassland

121. ground
122. grove
123. harbor
124. harpoon
125. harvest
126. herd
127. highland
128. highway
129. hills
130. hillside
131. home
132. horizon
133. hotel
134. house
135. hut
136. ice
137. iceberg
138. igloo
139. inland
140. iron
141. irrigate
142. irrigation
143. island
144. jewelry
145. journey
146. jungle
147. kayak
148. lace
149. lake
150. land
151. language
152. lava
153. lighthouse
154. liner
155. locomotive
156. lowland
157. machine
158. mainland
159. map
160. market
161. marsh
162. meadow
163. metal
164. miles
165. mill
166. mine
167. moisture
168. money
169. mosque
170. motor
171. mountain
172. mouth
173. mud
174. museum
175. nation
176. north
177. northeast
178. northeastern
179. northern
180. northward
181. northwest
182. oasis
183. ocean
184. oil
185. orchard
186. ore
187. park
188. pass
189. pasture
190. peaks
191. peninsula
192. pier
193. plain
194. plane
195. plantation
196. plateau
197. plow
198. polder
199. pond
200. port
201. possessions
202. post
203. power
204. products
205. pyramid
206. radio
207. raft
208. rail
209. railroad
210. railway
211. rain
212. rainfall
213. ranch
214. range
215. rapid
216. ray
217. reef
218. region
219. ridge
220. river
221. road
222. roadway
223. rock
224. route
225. rowboat
226. ruins
227. sail
228. salt
229. sand
230. sandstorm
231. scenery
232. school
233. schooner
234. sea
235. seacoast
236. sea level
237. seaport
238. shelter
239. ship
240. shipyard
241. shop
242. shore
243. silver
244. sky
245. skyscraper
246. sleds
247. slope
248. snow
249. soil
250. source
251. south
252. southeast
253. southeastern
254. southern
255. southward
256. southwest
257. spring
258. springs
259. star
260. state
261. station
262. steam
263. steamer
264. steamship
265. steel
266. stone
267. store
268. storm
269. strait
270. stream
271. street
272. street-car
273. summer
274. sun
275. supplies
276. surface
277. swamp
278. telegraph
279. telephone
280. temperature
281. temples
282. tents
283. terrace
284. tide
285. tile
286. timber
287. tin
288. tool
289. town
290. traffic
291. trail
292. train
293. travel
294. tributary
295. trip
296. truck
297. tunnel
298. tupik
299. umiak
300. upstream
301. valley
302. vessel
303. village
304. vineyards
305. volcano
306. voyage
307. wagon
308. warehouses
309. waterfall
310. watch
311. water
312. waterfront
313. waterway
314. wave
315. weather
316. well
317. west
318. western
319. westward
320. wharf
321. wheel-barrow
322. wind
323. windmill
324. winter
325. work
326. world
327. zoo

ANNUAL MEETING
NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

The National Council of Geography Teachers will hold its annual meeting in Chicago on December 27 and 28. The meetings will be at the University of Chicago.

The program will have a number of features of special interest. The Council will have the privilege of hearing Professor L. Dudley Stamp of the London School of Economics, who will discuss the English school examination system and its influence on the teaching of geography. One session of the conference will be devoted to two demonstration lessons, one with elementary school pupils and one with secondary. The lessons will be discussed by a panel led by Professor Edith Parker of the University of Chicago.

At least one of the sessions will probably be arranged to meet in three sections; one for elementary school teachers, one for secondary, and one for college. Papers of practical value for teachers in each of these fields will be presented.

The final session will consist of a joint meeting with the Association of American Geographers. An interesting program is being arranged by that organization, dealing with the present world situation from the standpoint of geography.

Edwin H. Reeder, *President*

EDITORIAL NOTES AND NEWS

The capacity of the water wheels in the constructed plants of the world, according to estimates made by the United States Geological Survey was 23,000,000 horsepower in 1920, and 64,000,000 at the end of 1938, an increase of nearly 180 percent in 18 years.

The ten countries leading in developed water power and the installed capacity, in horsepower, of water wheels in each, according to these estimates were as follows: First, United States, 17,949,000; second, Canada, 8,191,000; third, Italy, 6,000,000; fourth, France, 5,400,000; fifth, Japan, 4,800,000; sixth, Germany, 4,000,000; seventh, Norway, 3,000,000; eighth, Switzerland, 2,800,000; ninth, Sweden 2,200,000; tenth, Union of Soviet Socialist Republics, 1,630,000.

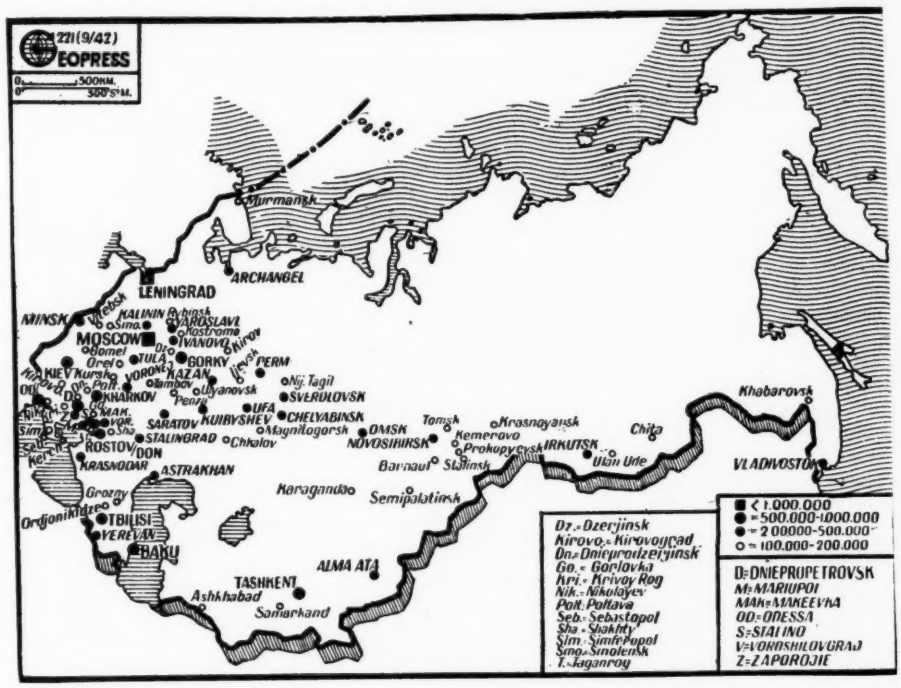
A statement of the capacity of machinery installed in the different countries, however, does not give a complete picture. For example, in such countries as Canada and Norway, which have abundant water-power resources, the electrical output of the water wheels is greater per horse-power installed than in other countries, such as France and Germany, whose resources are not so great. In Canada and Norway only the best sites are utilized, and at these sites only so much machinery is installed as can be operated thruout a large part of the year with the water available, whereas in countries where the demand for power is great and the potential water-power resources comparatively small, machinery is installed to use water power that is available for only a small part of the year, power for the remaining period being supplied by steam.

According to the Soviet census of January 17, 1939, the Soviet Union possesses 82 large cities of more than 100,000 inhabitants. According to the last census in 1926, this country had only 33 towns with more than 100,000 inhabitants. Among the numerous large new cities caused by industrialization, there are such as Karaganda and Magnitogorsk which, in 1926, did not exist at all.

The map shows the concentration of the big towns in the European part of the Soviet Union, especially in the Ukraine, while the enormous northern area of the country has changed but little. The order of importance of the big cities of the Soviet Union according to the census of this year, is as follows (population in thousands of inhabitants; former names in parentheses):

1. Moscow 4137
2. Leningrad (St. Petersburg 3191
3. Kiev 846
4. Kharkov 833
5. Baku 809
6. Gorky (Nijny-Novgorod 644
7. Odessa 604
8. Tashkent 585
9. Tbilisi (Tiflis) ... 519
10. Rostov/Don 510
11. Dniepropetrovsk (Yekaterinoslav) . 501
12. Stalino (Yuzovka) 462
13. Stalingrad (Tzaritzyn) 445
14. Sverdlovsk (Yekaterinburg) .. 426
15. Novosibirsk (Novo-Nikolayevsk) 406
16. Kazan 402
17. Kuibyshev (Samara) 390
18. Saratov 376
19. Voronej 327
20. Yaroslavl 298
21. Zaporozhye (Alexandrovsk) .. 289
22. Ivanovo (Ivanovo-Voznesensk) 285
23. Archangel 281
24. Omsk 281
25. Chelyabinsk 273
26. Tula 272
27. Perm 255
28. Astrakhan 254
29. Ufa 246
30. Irkutsk 243
31. Makeevka (Dmitrievsk) 240
32. Minsk 239
33. Alma Ata 231
34. Mariupol 222
35. Kalinin (Tver) .. 216
36. Voroshilovgrad (Lugansk) 213
37. Vladivostok 206
38. Krasnodar (Yekaterinodar) .. 204
39. Yerevan (Erivan) 200
40. Khabarovsk 199
41. Krivoy Rog 198
42. Krasnoyarsk 190
43. Taganrog 189
44. Ijevsk 176
45. Chkalov (Orenburg) 173
46. Grozny 172

47. Stalinsk (Kuznetzk) 170
48. Vitebsk 167
49. Nikolayev 167
50. Karaganda 166
51. Nijny Tagil 160
52. Penza 157
53. Smolensk 157
54. Shakhty (Alexandrovsk-Grushevsky 155
55. Barnaul 148
56. Dnieprodzerjinsk (Kamenskoye) ... 148
57. Magnitogorsk 146
58. Gomel 144
59. Kirov (Vyatka) .. 143
60. Simferopol 143
61. Tomsk 141
62. Rybinsk 139
63. Samarkand 134
64. Kemerovo (Shcheglovsk) 133
65. Poltava 130
66. Ulan-Ude (Verkhne-Udinsk) .129
67. Ordjonikidze (Vladikavkaz) ... 127
68. Ashkhabad (Askhabad) 127
69. Tambov 121
70. Kostroma 121
71. Kursk 120
72. Murmansk 117
73. Sebastopol 112
74. Orel 111
75. Semipalatinsk 108
76. Gorlovka 108
77. Prokopyevsk 107
78. Kerch 104
79. Dzerjinsk (Rastyapino) 103
80. Chita 103
81. Ulyanovsk (Simbirsk) 102
82. Kirovograd (Yelizavetgrad) .. 100



According to Lloyd's Register of Shipping, the total gross tonnage of merchant vessels was 69,440,000 July 1, 1939 (taking account only of vessels of more than 100 tons).

More than a quarter of the mercantile marine of the world belongs to Great Britain, and more than 30 per cent, that is to say 21,215,000 tons, to the British Empire. In the second place comes United States with 17 per cent of the world tonnage, so that the two Anglo-Saxon Powers possess together almost half of the mercantile marine of the world.

The other maritime countries follow far behind, and among them, little Norway, after Japan, plays the most important part.

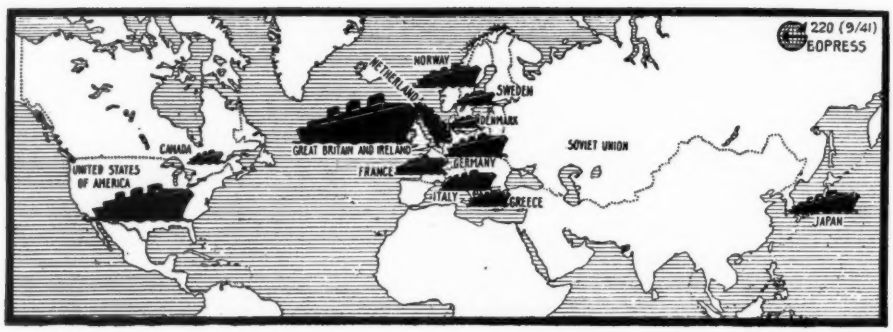
The following countries have commercial fleets exceeding a million gross tons (figures in thousands):

1. Great Britain and Ireland	17,984	8. France	2,953
2. United States of America	11,974	9. Greece	1,781
3. Japan	5,630	10. Sweden	1,582
4. Norway	4,835	11. Soviet Union	1,316
5. Germany	4,493	12. Canada	1,306
6. Italy	3,448	13. Denmark	1,176
7. The Netherlands	2,973		

The largest ships in the world (of more than 40,000 tons) are, at present, the following (in gross tons):

1. Queen Elisabeth (Brit.)*	85,000	6. Europa (Germ.)	49,746
2. Normandie (Fr.)	83,423	7. Conte di Savoia (It.)	48,502
3. Queen Mary (Brit.)	81,235	8. Aquitania (Brit.)	44,786
4. Bremen (Germ.)	51,731	9. Ile de France (Fr.)	43,450
5. Rex (It.)	51,062	10. Empress of Britain (Brit.)	42,348

* Under construction.



According to the census of May 17, 1939, the German Reich possesses 65 large cities (with more than 100,000 inhabitants), of which three (Berlin, Vienna and Hamburg) have more than 1,000,000 inhabitants.

According to the previous census, that of June 16, 1933, the Reich contained only 51 large towns.

Since that date, however, by its territorial expansion, Germany includes eight new large towns each having more than 100,000 inhabitants, namely: Saarbrücken, the three large towns of Austria (Vienna, Graz and Linz) and four big towns of the Protectorate of Bohemia and Moravia (Prague, Brunn, Mährisch-Ostrau and Pilsen). By the annexation of communes and by the growth of their own populations, eight medium-sized towns have become, since 1933, large cities: Potsdam, Rostock, Dessau, Wilhelmshaven, Darmstadt, Freiburg, Bonn and Beuthen. On the other hand, two large towns formerly existing as independent municipalities, namely Altona and Harburg-Wilhelmsburg, have now been incorporated in Hamburg.

The large towns of Germany at present are the following (population in thousands):

1. Berlin	4,332	6. Köln (Cologne)	768	12. Düsseldorf	539
2. Wien (Vienna)	1,918	7. Leipzig	701	13. Dortmund	537
3. Hamburg	1,682	8. Essen	659	14. Hannover (Hanover)	472
4. Prague (Praha)	962	9. Dresden	625	15. Stuttgart	459
5. München (Munich)	828	10. Breslau	615	16. Duisburg	431
		11. Frankfurt/Main	546		

17. Nürnberg (Nuremberg)	430	34. Carlsruhe	189	50. Moravska Ostrava	128
18. Wuppertal	398	35. Augsburg	185	51. Bielefeld	128
19. Königsberg	368	36. Wiesbaden	172	52. München-Gladbach	127
20. Bremen	342	37. Crefeld-Urdingen	169	53. Hindenburg	126
21. Chemnitz	334	38. Erfurt	166	54. Rostock	122
22. Magdeburg	334	39. Aachen (Aix-la-Chapelle)	165	55. Dessau	120
23. Gelsenkirchen	313	40. Mainz (Mayence)	159	56. Wilhelmshaven	118
24. Bochum	303	41. Lübeck	153	57. Gleiwitz	117
25. Brünn (Brno)	291	42. Hagen	151	58. Pilsen (Plzen)	117
26. Mannheim	283	43. Münster	143	59. Darmstadt	115
27. Kiel	272	44. Ludwigshafen	143	60. Freiburg	111
28. Stettin	268	45. Solingen	138	61. Plauen	110
29. Halle	220	46. Mülheim (Ruhr)	136	62. Würzburg	108
30. Cassel	217	47. Potsdam	136	63. Remscheid	103
31. Graz	210	48. Saarbrücken	135	64. Bonn	101
32. Braunschweig (Brunswick)	201	49. Linz	131	65. Beuthen	100
33. Oberhausen	191				

The map shows the concentration of the big cities in Western Germany and particularly in the territory of the Rhine and the Ruhr.

According to the latest census, the population of the Reich is 79,577,000.

To this total must be added the population of the territories where no census has been taken such as: Memel (with 148,000 inhabitants according to the census of 1932) and the Protectorate of Bohemia and Moravia (with 6,805,000 inhabitants according to the census of 1930) which gives a population of 86,530,000 inhabitants for the entire Reich. It now appears that most of Poland, Danzig and Slovakia will be incorporated in the Reich.

According to the statistics of the League of Nations, world exports (with the exception of Spain, for which there are no figures available) rose in 1938 to 13,356 millions of American gold dollars at the old parity (one old gold U.S.A. dollar = 1.692 new gold U.S.A. dollars = 6 sh. 11 d.).

Compared with the preceding year, during the course of which world exports amounted to 15,347 millions of gold dollars, this figure represents an important decline. In conformity with the general depression, the exports of the principal commercial countries has decreased, with the exception of Switzerland and Venezuela, where it has increased.

The United States, Great Britain and Germany far outrank any of the other great commercial powers. The fifteen leading countries with exports of 226 million gold dollars in 1938 are as follows:

1. United States	1,805	9. Netherlands	337
2. Great Britain	1,359	10. Italy	323
3. Germany	1,336	11. Australia	306
4. Canada	562	12. Union of South Africa	289
5. France	517	13. Sweden	273
6. Japan	447	14. Argentine	259
7. Belgium-Luxemburg	430	15. Netherlands Indies	226
8. India (Brit.)	350		

According to a release from the United States Department of Agriculture, American producers of Karakul sheep supply less than one-half of one per cent of the lambskins used for broadtail, Persian lamb, and caracul furs. California has the largest number of these sheep, with Texas second and Idaho third in rank. The United States Biological Survey reports only 5,389 Karakul sheep on American farms, on January 1, 1938. Since the quarantine regulations prohibiting direct importations of Karakuls from central Asia make increases in herds very difficult, the Biological Survey and Bureau of Animal Industry have co-operated in a breeding program to cross Karakuls with Blackface Highland and Corriedale breeds. The resulting pelts compare favorably with purebred Karakuls.

The Pennsylvania Council of Geography Teachers last year initiated the publication of a 32-page bulletin featuring a variety of short articles of distinctive value to geography teachers. Erna Grassmuck Gilland headed the editorial staff of the first bulletin.

Lambda chapter of Gamma Theta Upsilon, Southern Illinois State Normal University, Carbondale, issues a fraternal news letter which features happenings of the fraternity and of the college Geography and Geology Department, and special news of student and staff membership. The May issue notes that the Joliet High School has eight full-time and four part-time geography teachers. Both physical and economic phases are taught. Only persons who majored in geography are permitted to teach geography. Last year 1200 of the 4000-student enrollment took geography.

GEOGRAPHICAL PUBLICATIONS

Ralph L. Woods. **America Reborn. A Plan for Decentralization of Industry.** 376 pp. Longmans Green & Co., N.Y. 1939. $3.00

This publication contains little that is new. It is essentially a compilation of data and ideas much discussed in recent times but here brought together within the covers of a single volume. A brief historical résumé of the factors which lead to the industrialization and growth of cities is offered as a background to the consideration of current urban social and economic problems. The third part of the book treats with possible ways of solving these problems. Appendices, bibliographies and an index conclude the treatise.

While this presentation will be of particular interest to the layman, yet if read by geographers it will serve to remind them of the extent to which many non-geographic factors discount the effectiveness of the geographic upon the growth of cities and other cultural elements in the landscape. Chapter I is especially worthwhile in this respect. On the other hand, the book is marred by dogmatic assertions and what to the reviewer seem to be numerous fallacious arguments. To discuss them in detail would require almost another volume. However, we point out a few items.

The latter part of the opening sentence of Chapter V would be difficult to prove, namely" . . . that their (the cities') economic life is motivated by the pursuits of profits and that they exist for wholly utilitarian ends." Again on page 105, "We shall find that the large city is an economic liability." The author has a right to this opinion but he needs to demonstrate it to be correct. The last paragraph on page 148 in which reference is made to the absurdity of manufacturing brass in Waterbury, Connecticut, made from "basic copper mined in Arizona and refined and smelted in New Jersey" and then sold to the automobile industry in Michigan, is followed by a comparison of the author's which is truly absurd, when he suggests it to be similar to "measuring a man in Stamford, Connecticut for a suit of clothes, having him journey to Chicago for a fitting and then to New York for the delivery of the garment."

Like so many studies in the humanities, this one reaches conclusions based upon insufficient evidence. Man being the variable that he is, and his social relations changing as rapidly as they do, requires a most searching investigation before any sweeping generalizations may be ventured; even so, they may be applicable only to the past and unsafe as criteria for predictions.

Eugene Van Cleef

Ohio State University

Griffith Taylor. **Environment, Race and Migration.** 498 pp., more than 300 maps and more than 50 photos; University of Chicago Press. 1937, $3.50.

Dr. Taylor is widely known for the originality of his work and his enthusiasm and energy. This latest book, of more than a score, is partly a revision of "Environment and Race," published in England in 1927 and in Japan in 1930. It includes, however, many new chapters and more than two hundred new maps. It has special interest to geography teachers because it includes his final conclusions about Australia, where he lived for many years prior to 1929, and because it presents with singular freshness many fundamental aspects of the geography of Canada, where, since 1935, he has been Professor of Geography at Toronto University.

Almost every teacher of geography who devotes any time to studying this unusual book will feel grateful for many stimulating concepts and interesting factual material. Geography as here presented is indeed dynamic, ranging from the geologic past to the

distant future, including the entire world and impinging upon many other fields of learning. The many highly original maps would, if there were nothing else, make this book a worthwhile addition to most geographic libraries.

STEPHEN S. VISHER

Indiana University

Leonard O. Packard, Charles P. Sinnott, Bruce Overton. **The Nations Today, A Physical, Industrial, and Commercial Geography.** 660 pp., text. 352 pictures. The Macmillan Company, New York, 1939.

The theme of this text, so the authors state, is: what men do for a living; what progress they have made; how they are adjusting themselves in an interdependent world; what problems the world holds for them.

In developing this set-up the authors have drawn a "realistic picture" of the physical surroundings of man in the various regions of the world; analyzed his reactions—his struggles and victories—to his obstacle-strewn but challenging environment; linked geography with history to show the influence of the "causating past" on mankind's progressive development; thrown into relief the steady enlargement of our economic environment and widened interest in other social groups thru the amazing development of transportation, communication, travel and trade; and focussed the student's attention on the fact that he is a part of today's environment and a participant in its activities.

The material of the text is organized under seven heads:—The Basis of Man's Life and Work; Our Country's Growth and the Development of Its Industries and Trade; The Nations of the Americas; Europe—A Continent of Diverse Nationalities; Asia—A Land of Beginnings; Great Britain's Island Dominions; Africa—the Last Frontier of the Nations. Each of these is sub-divided into units under which the material is discussed by topics. About one-half of the text is devoted to our own country with its "vast and varied industries," its production, competition and its distribution both at home and abroad.

Several features make for clarity and are great stimulators of interest—for each large division there is a one-page forecast which reviews the high points of history, lines up the chief geographic, economic and social factors and brings out the results of the inter-play of these in producing present day problems. Of the wealth of good pictures outstanding ones, taken expressly for the text, have captions that add much to the desired understanding. Each large division and each unit has a stimulating key-note picture.

This book is readable, interesting, well-organized and convincing—the work of trained geographers who know their world, have expressed what they know in clear-cut English, timely illustrated by well chosen pictures and statistics, and who, in summing up their findings, suggest, with no show of being prophets, the problems likely to develop. The well-grounded structure of this text will make the addition of future changes a matter of building *on* rather than *over* in extending the concept of The Nations Today.

MABEL WASHBURN

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Indianapolis, Ind.